

## Claims

- [c1] What is claimed is:
1. A method for using an optical disc apparatus to record data onto an optical disc in multiple write sessions, the optical disc apparatus comprising a delay detection circuit for detecting gaps between data written to the optical disc in successive write sessions, the method comprising:  
writing a set of first data to the optical disc;  
searching for an ending location of the first data on the optical disc;  
writing a set of test data to the optical disc such that a beginning location of the test data is approximately equal to the ending location of the first data;  
using the delay detection circuit to detect a gap between the first data and the test data, the gap being calculated by subtracting the ending location of the first data from the beginning location of the test data; and  
writing a set of second data to the optical disc such that a beginning location of the second data is equal to the beginning location of the test data minus a value contained in the gap.
  - [c2] 2. The method of claim 1 wherein the delay detection circuit of the optical disc apparatus further comprises a memory for storing desired data, which is data desired to be written onto the optical disc, and the method further comprises comparing the desired data to the first data and the test data in order to calculate the value of the gap between the first data and the test data.
  - [c3] 3. The method of claim 2 wherein the set of first data and the set of test data are combined to form a set of read data, and the method further comprises comparing the desired data to the read data in order to calculate the value of the gap between the first data and the test data.
  - [c4] 4. The method of claim 3 wherein the delay detection circuit of the optical disc apparatus further comprises a clock generating circuit for generating a set of clock pulses, and the method further comprises using the delay detection circuit to read values of the desired data and the read data at positive edges of the clock pulses so as to compare the desired data to the read data and calculate the value of the gap.

- [c5] 5. The method of claim 4 wherein the set of clock pulses is a plurality of EFM clock signals with identical frequency, each EFM clock signal being out of phase with other EFM clock signals, and the combination of the plurality of EFM clock signals producing a combined clock signal having a frequency that is a multiple of the EFM clock signal frequency.
- [c6] 6. An optical disc apparatus for recording data onto an optical disc in multiple write sessions, the optical disc apparatus comprising:  
a write circuit for writing a set of first data to the optical disc;  
a read circuit for reading an ending location of the first data on the optical disc and for instructing the write circuit to write a set of test data to the optical disc such that a beginning location of the test data is approximately equal to the ending location of the first data; and  
a delay detection circuit for detecting a gap between the first data and the test data, the gap being calculated by subtracting the ending location of the first data from the beginning location of the test data, and for instructing the write circuit to write a set of second data to the optical disc such that a beginning location of the second data is equal to the beginning location of the test data minus a value contained in the gap.
- [c7] 7. The apparatus of claim 6 wherein the delay detection circuit of the optical disc apparatus further comprises a memory for storing desired data, which is data desired to be written onto the optical disc, and the desired data is compared to the first data and the test data in order to calculate the value of the gap between the first data and the test data.
- [c8] 8. The apparatus of claim 7 wherein the set of first data and the set of test data are combined to form a set of read data, and the desired data is compared to the read data in order to calculate the value of the gap between the first data and the test data.
- [c9] 9. The apparatus of claim 8 wherein the delay detection circuit of the optical disc apparatus further comprises a clock generating circuit for generating a set of clock pulses, and the delay detection circuit is used to read values of the desired data and the read data at active edges of the clock pulses so as to

compare the desired data to the read data and calculate the value of the gap.

[c10]

10. The apparatus of claim 9 wherein the set of clock pulses is a plurality of EFM clock signals with identical frequency, each EFM clock signal being out of phase with other EFM clock signals, and the combination of the plurality of EFM clock signals producing a combined clock signal having a frequency that is a multiple of the EFM clock signal frequency.